

Claims:

We claim:

- 5 1. A method for adding a telephone participant to a multi-participant video conference, comprising:
- sending a first message to each of a plurality of multicast appliances over the Internet, wherein the first message comprises a group address which identifies participants;
- 10 each of the multicast appliances receiving the first message;
- establishing a plurality of virtual private networks across the Internet between the multicast appliances;
- wherein one or more of the participants are able to communicate in the multi-participant video conference;
- 15 the telephone participant joining the multi-participant video conference, wherein said joining comprises:
- a first participant contacting the telephone participant
- establishing a phone number with a voIP server;
- the VoIP server communicating with a gateway to call the telephone
- 20 participant;
- the telephone participant participating in the multi-participant video conference.
- 25 2. The method of claim 1, wherein the telephone participant participating in the multi-participant video conference comprises:
- the telephone participant speaking in the video conference;
- generating digital voice data in response to the telephone participant speaking;
- transforming the digital voice data into IP packets;
- 30 transmitting the IP packets containing the digital voice data to the first participant;

at a computer system of the first participant, decoding the IP packets containing the digital voice data to produce the digital voice data;

mixing the digital voice data of the telephone participant with digital voice data of the first participant;

5 providing the mixed digital voice data of the telephone participant and the first participant to the other participants.

3. The method of claim 2, further comprising:

10 mixing the digital voice data of the first participant and the digital voice data of the other participants;

providing the mixed digital voice data of the first participant and the other participants to the telephone participant

15 4. The method of claim 1, wherein the telephone participant participating in the multi-participant video conference comprises:

the telephone participant speaking in the video conference;

generating digital voice data in response to the telephone participant speaking;

transforming the digital voice data into IP packets;

20 configuring the IP packet with a group address according to a multicast protocol to create a multicast IP packet;

encapsulating the multicast IP packet as a unicast packet;

transmitting the unicast packet over the virtual private networks across the Internet between one or more appliances;

25 one or more of the appliances determining the multicast data from the unicast packet; and

the appliances providing the multicast data to each of the other participants in the group address.

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5. The method of claim 1, further comprising:

one or more of the participants communicating in the multi-participant video conference, comprising:

5 configuring IP packets with digital media data and a group address according to a multicast protocol to create a multicast IP packet; and
encapsulating the multicast IP packet as a unicast packet and sending the unicast packet to each of the other participants in the group address.

6. The method of claim 5,

10 wherein said encapsulating comprises encrypting the multicast IP packet.

7. The method of claim 1, further comprising:

one or more of the participants communicating in the multi-participant video conference, comprising:

15 generating digital media data;
transforming the digital media data into IP packets;
configuring the IP packet with a group address according to a multicast protocol to create a multicast IP packet;
encapsulating the multicast IP packet as a unicast packet;
20 transmitting the unicast packet over the virtual private networks across the Internet between one or more appliances;
one or more of the appliances determining the multicast data from the unicast packet;
the appliances providing the multicast data to each of the other participants
25 in the group address;
presenting the digital media data to the other participants in the video conference.

8. The method of claim 7,

30 wherein said encapsulating comprises encrypting the multicast IP packet.

9. A method for adding a telephone participant to a multi-participant audio-video conference, comprising:

5 sending a first message to each of a plurality of multicast appliances over the Internet, wherein the first message comprises a group address which identifies the participants;

 each of the multicast appliances receiving the first message;

 establishing a plurality of virtual private networks across the Internet routes between the multicast appliances;

10 one or more of the participants communicating in the multi-participant video conference;

 the telephone participant joining the multi-participant video conference, wherein said joining comprises:

 the telephone participant calling into a gateway server;

15 the telephone participant providing conference ID information;

 the PSTN gateway server establishing communication with a conferencing server;

 authenticating the telephone participant; and

 transmitting multicast group information to the gateway server;

20 wherein the gateway server is operable to use the multicast group information to enable the telephone participant to participate in the multi-participant video conference.

10. The method of claim 9,

25 wherein the telephone participant participating in the multi-participant video conference comprises:

 the telephone participant speaking in the video conference;

 generating digital voice data in response to the telephone participant speaking;

30 the gateway transforming the digital voice data into IP packets;

configuring the IP packet with a group address according to a multicast protocol to create a multicast IP packet;

encapsulating the multicast IP packet as a unicast packet;

transmitting the unicast packet over the virtual private networks across the Internet between one or more appliances;

one or more of the appliances determining the multicast data from the unicast packet; and

the appliances providing the multicast data to each of the other participants in the group address.

11. A method for adding a first telephone participant to a multi-participant video conference, comprising:

sending a first message to each of a plurality of multicast appliances over the Internet, wherein the first message comprises a group address which identifies the participants;

each of the multicast appliances receiving the first message;

establishing a plurality of virtual private networks across the Internet routes between the multicast appliances;

one or more of the participants communicating in the multi-participant video conference; and

one or more telephone participants joining the multi-participant video conference.